

U.S.S.N. 10,636,154

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Claim Amendments

Please amend claims 1, 2, 4, 21, 22, 24-27, and 33 as follows:

Please cancel claims 6, 20, and 23 as follows:

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Listing of Claims

1. (currently amended) A method of controlling the spatial distribution of RF power used to generate a plasma for processing a semiconductor device process wafer to achieve a uniform density of said plasma over an entire face of said process wafer, comprising the steps of:

(a) producing RF power from a single RF generator comprising a dual frequency system;

(b) delivering the RF power to each of a plurality of separate electrode zones according to a matching network, said RF power individually deliverable in parallel to separate electrode zones at a selected RF power level according to a plurality of variable capacitors, each of said variable capacitors associated with one of said electrode zones, said separate electrode zones comprising an electrostatic chuck; and

(c) separately controlling the RF power delivered to each of the electrode zones so as to produce a desired spatial distribution of RF power in response to determining a density of said plasma across said process wafer face, said desired spatial

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distribution of RF power selected to achieve a uniform density of said plasma across said entire surface of said process wafer.

2. (currently amended) The method of claim 1, wherein step (c) is performed by tuning each of a plurality of electrical circuits comprising said plurality of variable capacitors respectively associated with the zones.

3. (original) The method of claim 2, wherein step (b) includes capacitively coupling the power generated in step (a) to each of the zones.

4. (currently amended) The method of claim 3, wherein step (c) includes tuning each of the variable capacitors ~~used~~ to couple the RF power to each of the said associated electrode zones.

5. (canceled)

6. (canceled)

7. (previously presented) The method of claim 1, wherein determining said plasma density comprises sensing the spatial distribution of RF power in a chamber used to process the

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semiconductor device.

8. (canceled)

9. (previously presented) The method of claim 1, wherein said separate electrode zones comprises a plurality of concentric ring electrodes insulated from one another.

Claims 10-19 (canceled)

20. (canceled)

21. (currently amended) The method of claim 1 [[3]], wherein said ~~step of capacitively coupling the electrode portions with the RF generator is carried out by~~ plurality of variable capacitors comprises a capacitor network.

22. (currently amended) The method of claim 1 wherein said matching network electrically matches the RF ~~generator~~ power with ~~the~~ a capacitor network comprising said plurality of variable capacitors.

23. (canceled)

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24. (currently amended) The method of claim 22 ~~[[23]]~~ further comprising the step of tuning each of the variable capacitors by a controller in the connecting circuit.

25. (currently amended) The method of claim 22 ~~[[23]]~~ further comprising the step of providing said electrode zones in concentric ring electrodes.

26. (currently amended) The method of claim 25 further comprising the step of coupling the respective variable capacitors with the ring electrodes to capacitively couple said RF power from the generator to the ring electrodes.

27. (currently amended) The method of claim 25 further comprising the step of tuning the variable capacitors and controlling the amount of RF power coupled to each of the ring electrodes.

28. (previously presented) The method of claim 1 wherein step (c) comprises sensing information related to the spatial distribution of the plasma density and delivering the sensed information to a controller, said controller controlling said desired spatial distribution of said RF power.

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29. (canceled)

31. (previously presented) The method of claim 1, wherein said desired spatial distribution of RF power is maintained substantially constant as a function of time during a plasma process.

32. (previously presented) The method of claim 1, wherein said plasma density is maintained substantially uniform over said process wafer face as a function of time during a plasma process.

33. (currently amended) A method of controlling the spatial distribution of RF power used to generate a plasma for processing a semiconductor device process wafer to achieve a uniform density of said plasma over an entire face of said process wafer, comprising the steps of:

producing RF power from a single RF power generator  
comprising a dual frequency system;

delivering the RF power to each of a plurality of separate electrode zones according to a matching network, said RF power

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individually deliverable to separate electrode zones at a selected RF power level according to a capacitor network comprising a plurality of variable capacitors arranged in parallel, each of said separate electrode zones associated with one of said variable capacitors, said separate electrode zones comprising an electrostatic chuck; and

separately controlling the RF power delivered to each of the electrode zones so as to produce a desired spatial distribution of RF power in response to determining a density of said plasma across said process wafer face, said desired spatial distribution of RF power selected to achieve a uniform density of said plasma across said entire face of said process wafer as a function of time during a plasma process.